WHAT IS CLAIMED IS:

1.   A global positioning system (GPS) terminal positioning method in a GPS satellite-invisible area by using a GPS terminal, a plurality of location detectors (LDs) for applying and sending offsets, respectively, a position determination entity (PDE) for controlling a position determination of the GPS terminal and an LD mapping server including a location information database, comprising the steps of:

(a) allowing the GPS terminal which receives a positioning request for obtaining a reference pilot signal of a base transceiver station or a repeater and LD pilot signals generated at the LDs;

(b) transmitting information on the reference pilot signal or the LD pilot signals to the PDE, if the reference pilot signal or the LD pilot signals are received with a strength not smaller than a predetermined value;

(c) calculating a chip-based pseudo noise code phase from the information on the reference pilot signal or the LD pilot signals transmitted to the PDE;

(d) transmitting the pseudo noise code phase to the LD mapping server, if the pseudo noise code phase calculated at step (c) is a phase of one of position pseudo noise codes allocated for the position determination; and

(e) obtaining location information on the GPS terminal by using the pseudo noise code phase.

2.   The method of claim 1, wherein the position pseudo noise codes are predetermined in a CDMA (code division multiple access) system.

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3.   The method of claim 1, wherein at least two position pseudo noise codes are predetermined.

4.   The method of claim 1, wherein the LD pilot signals
10   are generated by applying offsets to the position pseudo noise codes.

5.   The method of claim 1, wherein each of the offsets is not larger than 64 chips.

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6.   The method of claim 1, wherein, if two position pseudo noise codes are predetermined, the difference between respective offsets to be added in the LD pilot signals is not larger than 128 chips.

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7.   The method of claim 1, wherein the difference between respective offsets to be added in the LD pilot signals generated from each LD corresponds to a unique identifier for differentiating said each LD from the other LDs.

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8. The method of claim 1, wherein the LD pilot signals are transmitted with a strength which is lower than that of the reference pilot signal.

9. The method of claim 1, wherein, at step (b), the GPS terminal transmits the information on the reference pilot signal or the LD pilot signals to the PDE by using a "Provide_Pilot_Phase_Measurement" message defined by an Interim Standard(IS)-801-1 standard.

10. The method of claim 1, wherein, at step (b), the predetermined value is T_DROP.

11. The method of claim 1, wherein, at step (b), the information on the reference pilot signal transmitted from the GPS terminal is at least one of a pseudo noise code phase of the reference pilot signal, the strength of the reference pilot signal and a measurement error of the pseudo noise code phase.

12. The method of claim 1, wherein the information on the LD pilot signals transmitted from the GPS terminal is at least one of a pseudo noise code phase of each LD pilot signals, the strength of each LD pilot signal and a measurement error of the pseudo noise code phase.

13. The method of claim 11 or 12, wherein the phase is measured and transmitted on a 1/16 chip basis.

14. The method of claim 1, wherein, in the location information database, the difference between respective offsets to be added in the LD pilot signals generated from each LD corresponds to the location information including an address, a name, a floor or a representative shop of its corresponding building.

15. The method of claim 1, wherein the GPS terminal includes PDA (Personal Digital Assistant), cellular phone, PCS (Personal Communication Service) phone, hand-held PC (Personal Computer), GSM (Global System for Mobile) phone, W-CDMA (Wideband CDMA) phone, EV-DO (Evolution Data Only) phone, EV-DV (Evolution Data and Voice) phone and MBS (Mobile Broadband System) phone.

16. The method of claim 1, wherein the PDE performs the position determination with A-GPS algorithm by using GPS satellite information received from the GPS terminal and, if it is impossible to perform the position determination, the steps (a) to (e) are processed.

17. A global positioning system (GPS) terminal positioning system in a GPS satellite-invisible area, comprising:

a plurality of location detectors (LDs) for applying preset offsets to position pseudo noise codes predetermined in a code division multiple access (CDMA) system, to generate and send LD pilot signals;

5   a GPS terminal for obtaining a reference pilot signal of a base transceiver station or a repeater and the LD pilot signals if a positioning request is received and, for transmitting information on the reference pilot signal or the LD pilot signals if the reference pilot signal or the LD

10   pilot signals are received with a strength not smaller than a predetermined value;

a position determination entity (PDE) for calculating a chip-based pseudo noise code phase from the information on the reference pilot signal or the LD pilot signals received

15   from the GPS terminal and, for transmitting the calculated pseudo noise code phase if the calculated pseudo noise code phase is a phase of one of position pseudo noise codes; and

a LD mapping server for generating location information of the GPS terminal by using the pseudo noise

20   code phase received from the PDE.

18.   The system of claim 17, wherein at least two position pseudo noise codes are predetermined.

25   19.   The system of claim 17, wherein each of the offsets is not larger than 64 chips.

20. The system of claim 17, wherein, if two position pseudo noise codes are predetermined, the difference between respective offsets to be added in the LD pilot signals is not larger than 128 chips.

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21. The system of claim 17, wherein the difference between respective offsets to be added in the LD pilot signals generated from each LD corresponds to a unique identifier for differentiating said each LD from the other LDs.

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22. The system of claim 17, wherein the LD pilot signals are transmitted with a strength which is lower than that of the reference pilot signal.

15 23. The system of claim 17, wherein the GPS terminal transmits the information on the reference pilot signal or the LD pilot signals to the PDE by using a "Provide_Pilot_Phase_Measurement" message defined by an Interim Standard (IS)-801-1 standard.

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24. The system of claim 17, wherein the predetermined value is T_DROP.

25. The system of claim 17, wherein the information on the
25 reference pilot signal transmitted from the GPS terminal is at least one of a pseudo noise code phase of the reference

pilot signal, the strength of the reference pilot signal and a measurement error of the pseudo noise code phase.

26.   The system of claim 17, wherein the information on the LD pilot signals transmitted from the GPS terminal is at least one of a pseudo noise code phase of each LD pilot signal, the strength of each LD pilot signal and a measurement error of the pseudo noise code phase.

27.   The system of claim 25 or 26, wherein the phase is measured and transmitted on a 1/16 chip basis.

28.   The system of claim 17, wherein the LD mapping server includes a location information database in which the difference between respective offsets to be added in the LD pilot signals generated from each LD corresponds to the location information including an address, a name, a floor or a representative shop of its corresponding building.

29.   The system of claim 17, wherein the GPS terminal includes PDA (Personal Digital Assistant), cellular phone, PCS (Personal Communication Service) phone, hand-held PC (Personal Computer), GSM (Global System for Mobile) phone, W-CDMA (Wideband CDMA) phone, EV-DO (Evolution Data Only) phone, EV-DV (Evolution Data and Voice) phone and MBS (Mobile Broadband System) phone.

30. The system of claim 17, further comprising GPS satellites for transmitting, to the GPS terminal, navigation data required to calculate the position of the GPS terminal by using A-GPS algorithm or C-GPS algorithm.